DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
690 Walnut Ave.St. 150
Vallejo, CA 94592-1133
(707) 649-5453
(707) 649-5493

Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Casey, William
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-027404
Date Inspected: 04-Apr-2012

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 700
OSM Departure Time: 1730
Location: Job Site

CWI Name: Bernie Docena and Fred Von Hoff

CWI Present:	☑ Yes	☐ No					
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: SAS Tower

Summary of Items Observed:

Caltrans Office of Structural Material (OSM) Quality Assurance Inspector (QAI) Joselito Lizardo was present at the Self Anchored Suspension (SAS) job site as requested to perform observations on the welding of components for the San Francisco Oakland Bay Bridge (SFOBB) Project.

At Tower Base 13 meter center external diaphragm plate to shear plate PJP T-joint W114, this QA has observed ABF welder James Zhen perform 1G (flat position) Shielded Metal Arc Welding (SMAW) welding root pass repair on the PJP T-joint after the entire removal of the previously welded root pass. This repair is being done per Request for Weld Repair (RWR) #201203-005 dated March 29, 2012. The welder was noted using 4.0mm diameter E7018H4R electrode implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-1001 Repair. Prior welding, the joint was preheated using Miller Proheat 35 Induction Heating System with noted temperature of more than 200°F. During welding, ABF QC Fred Von Hoff was noted monitoring the welding parameters with measured working current of 170 amperes. After the completion of the root pass, ABF QC Fred Von Hoff performed the MT on the root pass repair and noted acceptable result. This QA also performed the MT verification and noted same result. After the completion and MT acceptance of the root pass, the welder put more fill passes using the SMAW before the welder used the Submerged Arc Welding. The welding observation was turned over to fellow QA Ken Riley in the afternoon of the shift.

At Tower Base 9 meter North diaphragm, this QA randomly observed ABF welder Wai Kitlai perform 4F (overhead position) Shielded Metal Arc Welding (SMAW) fillet welding the 45mm thick stiffener plate shop marked piece number 439-3 around one foot below the drop in plate ND1-A52. The stiffener is being welded on three sides namely; tower skin plate 'E', North shear plate and vertical stiffener plate. The welder was noted using

4.0mm diameter E7018H4R electrode implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-F1200A. This QA Inspector observed ABF personnel using propylene gas torch to preheat the plates being welded prior welding. This QA Inspector observed QC Inspector Bernie Docena using a Fluke infra red temperature gauge to verify the preheat temperature of more than 150°F. This QA Inspector performed a verification of the welding parameters and observed 160 amperes on the 4.0mm diameter electrode. At the end of the shift, the top 8mm fillet weld of the stiffener was still continuing and should continue tomorrow.

At Tower Base 9 meter North diaphragm, this QA randomly observed ABF welder Jin Pei Wang perform 4F (overhead position) Shielded Metal Arc Welding (SMAW) fillet welding the 45mm thick stiffener plate shop marked piece number 439-3 around one foot below the drop in plate ND1-A52. The stiffener is being welded on three sides namely; tower skin plate 'E', North shear plate and vertical stiffener plate. The welder was noted using 4.0mm diameter E7018H4R electrode implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-F1200A. This QA Inspector observed ABF personnel using propylene gas torch to preheat the plates being welded prior welding. This QA Inspector observed QC Inspector Bernie Docena using a Fluke infra red temperature gauge to verify the preheat temperature of more than 150°F. This QA Inspector performed a verification of the welding parameters and observed 160 amperes on the 4.0mm diameter electrode. At the end of the shift, the top 8mm fillet weld of the stiffener was still continuing and should continue tomorrow.

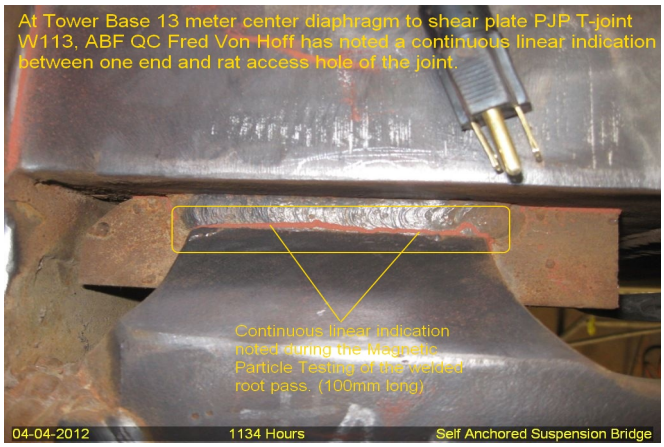
At Tower Base 13 meter inner East external diaphragm, this QA Inspector randomly observed ABF personnel Xiao Jian Wan continuing to perform 4F (overhead position) fillet production welding on the perimeter C10 channel to 45mm thick diaphragm plate fillet weld joint W133-2. The welder was noted welding 6mm fillet between one side of the channel top flange and diaphragm plate per detail 1 of the ZPMC drawing number FW3. The welder was using the 3.2mm diameter E7018H4R electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-F1200A. This QA Inspector observed ABF personnel using propylene gas torch to preheat the plates being welded prior welding. This QA Inspector observed QC Inspector Bernie Docena using a Fluke infra red temperature gauge to verify the preheat temperature of more than 150°F. This QA Inspector performed a verification of the welding parameters and observed 120 amperes on the 3.2mm diameter electrode. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-F1200A. At the end of the shift, SMAW fillet welding was completed.

At Tower Base 13 meter inner East external diaphragm, this QA Inspector randomly observed ABF personnel Luo Xiao Hua continuing to perform 4F (overhead position) fillet production welding on the perimeter C10 channel to 45mm thick diaphragm plate fillet weld joint W133-2. The welder was noted welding 6mm fillet between one side of the channel top flange and diaphragm plate per detail 1 of the ZPMC drawing number FW3. The welder was using the 3.2mm diameter E7018H4R electrode and implementing Caltrans approved Welding Procedure Specification (WPS) ABF-WPS-D15-F1200A. This QA Inspector observed ABF personnel using propylene gas torch to preheat the plates being welded prior welding. This QA Inspector observed QC Inspector Bernie Docena using a Fluke infra red temperature gauge to verify the preheat temperature of more than 150°F. This QA Inspector performed a verification of the welding parameters and observed 128 amperes on the 3.2 diameter electrode. The welding appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-F1200A. At the end of the shift, SMAW fillet welding was completed.

At the request of Quality Control Field Supervisor, Bonifacio Daquinag, QA has randomly verified the QC VT/MT of the Partial Joint Penetration (PJP) welding of three (3) PJP T-joints and twenty one (21)fillet weld

joints. The QA verification was performed to verify that the welding and the VT/MT inspection performed by the QC inspector at the diaphragms meet the requirements of the contract documents. At the conclusion of the QA verification it appeared that the weld and the QC inspection complied with the contract documents.

1. W050 9M diaphragm PJP T-joint – weld cover QA verified
2. W050 9M diaphragm PJP T-joint – weld cover QA verified
3. W132-1 13M diaphragm fillet weld joint - weld cover QA verified
4. W133-1 13M diaphragm fillet weld joint - weld cover QA verified
5. W091-19 to W091-36 fit lug fillet weld joints - weld cover QA verified
6. W029 9M diaphragm PJP T-joint – weld cover QA verified



Summary of Conversations:

No significant conversation ocurred today.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact SMR Nina Choy 510-385-5910, who represents the Office of Structural Materials for your project.

WELDING INSPECTION REPORT

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Inspected By:	Lizardo,Joselito	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer